

**CLAIMS**

- 5 1. A program controller arranged for use with a modular system, and arranged to manage a program for use with a replaceable hardware module of the modular system, the module being a customer-replaceable part, the controller being arranged to manage the program automatically, according to an agreement between a supplier and a customer, and according to a stored history of use of the hardware module.
- 10 2. The program of claim 1, the history being stored on the module.
3. The program controller of claim 1 arranged to be part of a shelf controller for managing modules in the form of cards for carrying out functions of a network element for a telecommunications network.
- 15 4. The program controller of claim 1, the program controller being arranged to determine an identity of the system and check it is authorized for use with that system.
- 20 5. The program controller of claim 1, the history comprising a program identifier of a program previously loaded on the module.
6. The program controller of claim 1, the history comprising a licence identifier of a program previously loaded on the module.
- 25 7. The program controller of claim 1, arranged to be located remotely from the system, and coupled to the system by a communications link.
8. The program controller of claim 1, arranged to maintain an inventory record of identities and relationships of modules, programs, and licence information for a given customer.
- 30 9. The program controller of claim 1 arranged to determine any changes in modules, at initialisation, and to check the configuration of any newly coupled modules.

10. The program controller of claim 1, the managing comprising copying all or part of the program to the module at initialisation.

5 11. The program controller of claim 1, the managing comprising authorising all or part of the program for the module at initialisation.

12. The program controller of claim 1, the history comprising an indication of which systems the module has been coupled to.

10 13. The program controller of claim 1, the program having licence information indicating a capability licensed, the program controller being arranged to configure the program according to the capability licensed.

15 14. The program controller of claim 1, the program having license information indicating license expiry information.

20 15. A program arranged for use with customer replaceable hardware module of a modular system, the program being arranged to cooperate with a program controller, to enable the program controller to manage the program according to a history of use of the module, the program having licence information relating to conditions of use of the program agreed with a supplier, the program being arranged to update the history of use of the module, with at least some of the licence information.

25 16. The program of claim 15 the licence information indicating which systems the program is authorized to be used with.

30 17. The program of claim 15 the licence information indicating if the program can be downloaded to a shelf of the system for automatic distribution to modules in the form of cards coupled to the shelf.

18. The program of claim 15 the licence information indicating if the program can be distributed to the module.

35 19. The program of claim 15 the licence information indicating a capability licensed. This can include for example a capability of upgrading an existing program.

20. A modular system having one or more modules and a program controller as set out in claim 1.

5 21. The system of claim 20, having an interface for coupling to a remote server to pass information for a supplier to maintain an inventory of programs and modules.

10 22. A module for use in a modular system, and being a customer replaceable part of that system, the module being associated with a program arranged to operate the module, the module having a non volatile memory, and having an interface to cooperate with a program controller located external to the module, the program controller being arranged to manage the program, the module being arranged to store securely in the non volatile memory a history of use of the module and the associated program, and being arranged to make that history available to the program controller.

15 23. The module of claim 22, the history comprising licence information of a program previously used with the module.

20 24. The module of claim 22, the history comprising identity of one or more systems the module had previously been coupled to.

25 25. The module of claim 22, the history comprising identity of a customer of a program previously used with the module.

26. A method of servicing the module of claim 22, the method having the steps of obtaining the stored history of use from the module, and using the history in arranging servicing of the module.

30 27. Billing software arranged to generate billing information relating to use of a program by a customer, the program being under the control of a program controller, the program being arranged to run on a customer replaceable hardware module of a modular system, the program being arranged to cooperate with a program controller, to enable the program controller to control use of the program according to a history of use of the module, the billing software being arranged to carry out the steps of:

obtaining information about the use of the program from the history of use of one or more of the modules, and  
generating the billing information according to the obtained information and from terms of a licence agreed with the customer.

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28. A method of managing a program for use with a replaceable hardware module of a modular system, the module being a customer- replaceable part, the method having the steps of accessing a stored history of use of the hardware module, and controlling the program automatically, according to the history and according to an agreement between  
10 a supplier and a customer.

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29. Apparatus for managing a program for use with a replaceable hardware module of a modular system, the module being a customer- replaceable part, the apparatus having means for accessing a stored history of use of the hardware module, and means for  
managing the program automatically, according to the history and according to an agreement between a supplier and a customer.

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30. A sequence of signals used to control a program for use with a replaceable hardware module of a modular system, the module being a customer- replaceable part, the sequence having signals to a program controller related to accessing a stored history of use of the hardware module, and signals from the program controller relating to controlling the program automatically, according to the history and according to an agreement between a supplier and a customer.

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31. A method of offering a communications service over a network using the system of claim 20.

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32. Inventory software arranged to maintain an inventory of programs and customer replaceable modules for multiple modular systems, the software being arranged to cooperate automatically with one or more program controllers as set out in claim 1 to obtain licence information about the programs, and to obtain the history of use of the modules.

33. The program controller of claim 1 in the form of software.